A Chance to "Alpha-Innovate" in Program Management

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The Department of Defense (DoD) continues to look for ways to encourage innovation and the transition of innovative concepts into its programs. The federal government has continued to support DoD rapid acquisition programs to get great ideas out to the warfighter. For example, the Air Force Research Laboratory's Vehicle Stopper Challenge encourages hopeful innovators to solve a specific problem. Similarly, the government website Challenge.gov offers prizes to people who can help solve technical problems in a wide variety of government programs.

While attracting innovation through programs like these is extremely valuable and provides great exposure, what can be done to improve the overall DoD acquisition process? What changes can be made within the infrastructure that will encourage innovation in all programs?

The new interim DoD Instruction (DoDI) 5000.2, dated Nov. 26, 2013, formally calls for the program manager (PM) and program office (PO) to be established during the first phase in the acquisition life cycle, the Material

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Solution Analysis (MSA) Phase. The designation of the PM at the nascent phase of a program gives the DoD an unprecedented opportunity to bridge the science and technology (S&T) "valley of death" and open the door to encouraging more innovation in DoD programs. Call it "alpha-innovating" from the DoD PM perspective.

Let's take a look at a prominent trend—"alpha contracting"—adopted by various parts of the DoD to address their priority concerns. The medical community promotes preventative care to increase the success of patient care by encouraging patients to maintain their health and catch medical problems early. Similarly, the contracting community adopted alpha contracting, according to Acquipedia, in order to improve the typically lengthy contracting process by enhancing communications, decreasing the number of formal proposal requests and the revisions required to correct errors, and reducing the whole process time (procurement administrative lead time) needed for contracting. Most recently, Steven Hutchison, former principal deputy in the Office of the Deputy Assistant Secretary of Defense for Developmental Test and Evaluation (DASD[DT&E]), introduced the "Shift Left" focus area in the DASD(DT&E)'s fiscal year 2013 Annual Report, calling for the test community to increase its involvement during the earlier phases of the acquisition life cycle.

What all of these communities have in common is the recognition that early involvement has attractive payoffs in the long term.

This article proposes several roles and responsibilities for newly appointed PMs that take advantage of the change in the DoDI 5000.2 policy. The article also identifies several institutional changes to help new PMs with their innovation goals.

New Roles and Responsibilities

Outreach Agent. During the early stages of gearing up for an Analysis of Alternatives (AoA), the DoD canvasses industry for their good ideas by a "request for information" call on the Federal Business Opportunities (FBO) website. This exchange is important. It tells industry that DoD has prioritized a certain set of capability gaps and is taking the next step in potentially closing those gaps. It helps answer industry's question, "What does the DoD want to invest in?" However, before the recent DoDI 5000.2 update, there has not been a requirement for a formalized point of contact for the pending program—someone who has a strong long-term interest in continuing the conversation with industry.

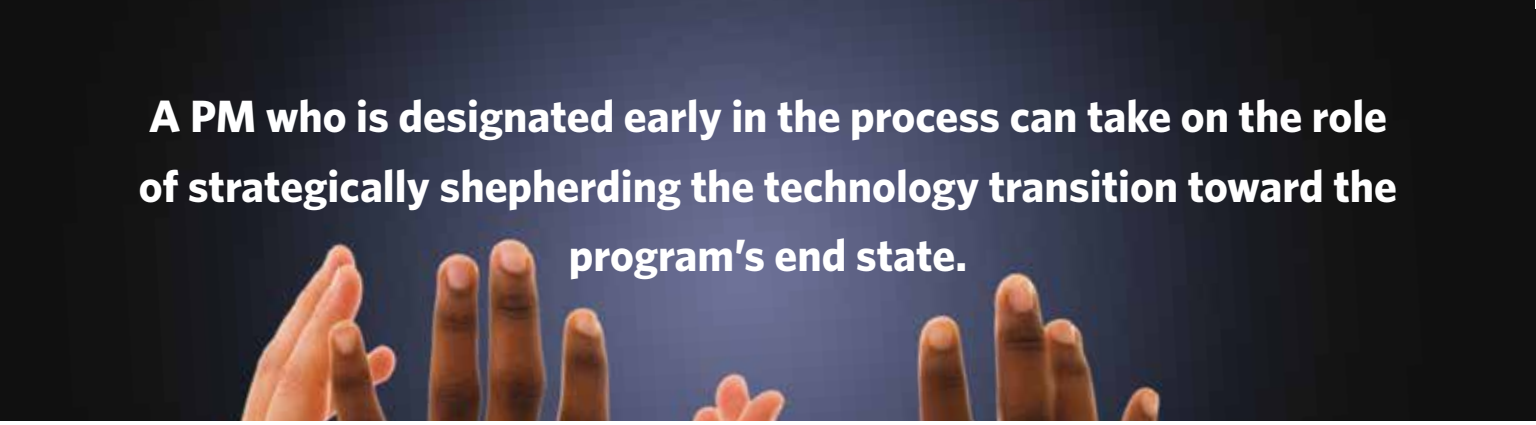
Designating the PM and establishing the PO during MSA allows the PM to be an active part of a program's innovation outlook from the very beginning. It enables PMs and industry to engage earlier than ever before, an especially valuable change as the AoA identifies the program's critical technology elements. Specifically, the DoDI 5000.2 states, "To achieve the best possible system solution, emphasis shall be placed on innovation and competition." Tools like the Defense Innovation Marketplace (www.defenseinnovationmarketplace.mil), as instituted by the Better Buying Power practice to "expand programs to leverage industry's IR&D" (independent research and development), give PMs insight into industry's IR&D efforts as never before. A major PM priority becomes engaging with industry to help guide its IR&D investments. As a result, industry gains the lead time to decide how it wants to invest IR&D funds and plan ahead for the Technology Maturation/Risk Reduction Phase.

Innovation Detective. In the MSA Phase A, a PM has more time to look across the innovation landscape to investigate, encourage and incorporate innovative ideas. This landscape includes technology transition programs within the DoD—such as Joint Capability Technology Demonstrations, Small Business Innovative Research and Title III for Defense Production—as well as Service-specific or other governmental transition programs. In addition, the PM has opportunities to canvass commercial (non-Defense) industries that may have applicable technologies.

Innovation Bridge-builder. The PM has earlier involvement in ensuring successful technology transition, crossing that "valley of death." The science and technology (S&T) community—including laboratories, federally funded research and development centers and university-affiliated research centers—relies on both the warfighter and the program management communities to ensure a successful technology transition. The S&T community teams with the warfighter community to understand the requirements and confirm its technology's relevance while researching and developing its advanced technology, and it teams with POs to transition its technologies to the warfighter. These technology transitions are formalized through technology transition agreements, which are usually signed by the S&T lead and the PM.

Before the latest DoDI 5000.2 update, there was generally not a formalized PO focal point for the S&T community to work with on such transitions. There are several organizations, such as the Air Force's product centers' developmental planning organizations, that can guide a transition to a point, but, at the end, PMs are still a critical element to the transition, as they own the program. Prior to this DoD 5000.2 update, PMs were not formalized until Milestone (MS) B for new programs. At this point, a program's critical technology elements should already have been assessed at technology readiness level 6, the PM has an acquisition program baseline and other marching orders in hand, and the window of opportunity and flexibility to incorporate additional potential innovations decreases. A PM who is designated early in the process can take on the role of strategically shepherding the technology transition toward the program's end state.

Long-term Program Architect. The PM leads the efforts to publish a program roadmap. This roadmap is a long-term look at how the program and any supporting programs will fulfill the warfighters' needs. For the innovation-savvy PM,



writing the roadmap in the MSA allows that PM to institute his or her vision for the next 10 to 15 years. The PM's vision should include engagement strategy with industry, the S&T community and applicable government agencies. While capturing the program's technology forecast, the PM should record technology pathways, how those technologies will on-ramp to the program and how unsuccessful technologies will be off-ramped. A roadmap that intrinsically includes the desire to explore and insert technological innovations also allows the staff to develop its contract strategy in the long term, which could maximize benefits to the acquisition and warfighter communities.

Risk Taker. The PM ultimately owns the risk management program in the PO and sets the tone for the risk culture within the organization. While risk is inherent in any development program, the risk increases as the PM tries to travel more innovative paths. While a formal acquisition PO doesn't have the same capacity to take risks as does the Defense Advanced Research Projects Agency (DARPA), the PM makes strategic, contractual and cultural decisions to foster a culture that will allow more risk taking. Strategically, the PM may design more technology on-ramps and off-ramps into the program plan. The PM's contracting strategy may focus more on risk sharing and how to incentivize industry innovation. Culturally, PMs can influence their staffs with their vision from the kick-off of the PO and with each subsequent hiring action. As Dr. Arati Prabhakar, director of DARPA, explains in a profile by Amanda Davis for the IEEE newsletter (Jan. 7, 2013):

> It all starts with the project managers. They have to listen and gather information, identify the problems keeping people up at night, find out what's brewing in their technical area, run with a certain idea, and then rally the technical community around a common goal.

The PM can set these decisions in motion from the start of the program life cycle, building a welcoming environment for seeking and incorporating innovative technologies from the ground up, instead of dealing with an "inherited culture" at MS B.

Innovation Ambassador. A critical role of PMs is to engage their communities, garner support for the programs and develop relationships with stakeholders on behalf of their programs. This span of personalities includes folks within and outside the PO. PMs who support an innovative culture and are trying to push boundaries may face resistance and pressures to conduct a lower-risk program. PMs may find they need to fill an educational role (and, at worst, a defensive one). How do PMs fulfill the educational role? First, they must understand the fundamentals of cultivating and maintaining a creative and innovative culture. Several short lectures by experts in the field, such as educator Sir Ken Robinson, writer Steve Johnson or IDEO founder David Kelley, are available on free-access media on TEDTalks (www.ted.com). Scholarly papers published by such authors as Harvard Business School Professor Teresa M. Amabile also are helpful. PMs who understand and internalize these fundamentals are better equipped to incorporate these principles into their program and to socialize their vision. They must "walk the walk" and, what is more important as an ambassador, "talk the talk."

With the PM designation and program initiation occurring in MSA, the PMs' window increases for weaving these fundamentals into the basis of their planning and strategy. In MSA, PMs will be working their program's first program objectives memorandum (POM) inputs through their Service or agency leadership. This POM input becomes the first quantitative instantiation of the acquisition strategy and related risks, and how the innovation-friendly strategy is socialized and justified becomes a critical challenge.

Other "ambassadorial" opportunities exist. For example, PMs may promote innovation when supporting their Service for any programmatic discussions at a congressional level, or when conducting "industry days" and sharing ideas with other PMs.

Institutional Changes

The foregoing roles and responsibilities are not the only changes needed. The DoD acquisition process doesn't revolve around one position. There are several other areas that may need to change in order to help the PM morph into the innovation agent the program needs.

Staffing with Innovators. Staffing needs can be put in two categories: functional and personal traits. Keeping in mind that the PO is being initiated in the MSA Phase, the PO should have functional representation from the S&T community and serve as liaison to industry and to other government agencies. With respect to personal traits, the PO needs folks who understand and are open-minded about blending innovation

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into the program strategy. They need to be innovative thinkers themselves and be willing to openly engage with industry (defense and non-defense), the S&T community at large and other government agencies. The PM should be a visionary but disciplined leader. Whereas the S&T community has the charge to do research to increase knowledge, PMs must remember that they do not and must not hobby shop. PMs should have a belief in the value of bringing emerging technology to the warfighter, and they must be able to execute a program efficiently to meet warfighter needs. Innovation is not just building new things but building and delivering that capability to the warfighter.

PMs Must Be Incentivized. The basic report card of a traditional PM depends on management of cost and schedule deadlines, performance of the system and mitigation of risks. This evaluation doesn't give the PM much incentive to incorporate many on- and off-ramps for innovative ideas in the program. One incentive would be to track return-on-investment for transitioned technologies and give the PM credit, just as PMs are given credit for cost savings/avoidance. One possible way to measure the level of innovativeness could be to borrow from an accounting principle, the "price-to-innovation-adjusted earnings" measure. Per the Investopedia website,

> Companies in [certain] industries are pressured by the need to innovate. However, accounting principles hurt these companies by forcing them to deduct R&D spending from earnings. Heavy expenditures on R&D [show] that a company is willing to take risks to further its growth. This calculation allows an investor to identify these innovative companies.

While this would take some research to translate to the DoD business model, it should be possible to establish a helpful measure.

Shift of R&D Funding. Allow PMs to own some 6.1, 6.2 and 6.3 funds to use as research grant funding. This funding shift serves two purposes. First, because PMs have this funding, looking proactively into the S&T arena becomes part of their portfolio (the grant aspect). Second, during technology transition, the resource reduces the funding impediment in the "valley of death." Should PMs own all the S&T funding? *Absolutely not.* R&D expertise belongs in the S&T community, which should still maintain its own total obligation authority. However, with funding comes the responsibility to understand its use, and this may be a good glue to draw the PM and S&T community closer.

Spread the Word. The DoD is making strides with the deployment of their Defense Innovation Marketplace website. Another way to continue to keep industry in the know would be to post on the site a list of ongoing and upcoming AoAs. Ensure that all the opportunities are listed with the point of contact and link to FBO. Though AoAs and requests for information are not exactly IR&D areas, raising the awareness of DoD activities would be advantageous and bring additional traffic and exposure to the site.

Shift the Culture. DoD as a whole must embrace the culture that allows creative engineering to become successful innovation. Acquirers must resolve to allow more risk taking, but ensure the acquisition strategy has the teeth to balance between innovation and delivering capability to the warfighter on time. The new DoDI 5000.2 designates the PM during MSA, facilitating the culture change during the birth of the program rather than midway at the Engineering and Manufacturing Development Phase. This PM appointment opens the time window immensely. PMs must embrace those vendor engagements, so that the mentality that says, "Hey, I don't have time to meet with vendor X, I have a program to run," now flips to encourage such engagements because of a desire to look for those innovation opportunities.

Conclusion

Like the medical, contracting and testing communities, the PM community now has an opportunity to engage up front and early. They can engage with industry earlier, bring the R&D community closer and stay more connected with both as the program matures. With the DoDI 5000.2 update, "alpha-innovating" has a chance to become reality, with the PM at the helm from the very early stages of the acquisition process, pulling it all forward.

Innovations come in big and small packages, and warfighters should have the chance to benefit from every possible one of them. Let the role of the PM evolve to meet the challenge of bringing valuable innovations to fruition.

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